

REMARKS

Applicants respond to the Office Action dated May 25, 2010. In this response, Applicants have amended claim 1. Following entry of these amendments, claims 1-3, 6, 11 and 12 are pending in the application.

Reconsideration of the present application is respectfully requested in view of the foregoing amendments and the remarks which follow.

Rejection Under 35 U.S.C. § 102

Claim 1 was rejected as being anticipated by JP 09-050810 (hereafter “Kurasawa”), as the Examiner states that Kurasawa teaches lithium hydroxide. In an effort to expedite prosecution, Applicants have amended claim 1 by deleting “lithium hydroxide.” It is respectfully submitted that this rejection should be withdrawn.

Rejections Under 35 U.S.C. § 103

The currently-pending claims have been rejected under 35 U.S.C. § 103 as follows:

(a) **claims 1, 3, 6, 11 and 12 as being unpatentable over U.S. Patent No. 6,071,649 (hereafter “Mao”) in view of U.S. Patent Application Publication No. 2003/0157409 to Huang (hereafter “Huang”).** Applicants respectfully traverse this rejection.

It is suggested that Mao discloses a method of making an electrode material which is LiNiO_2 coated with LiCoO_2 and that Huang discloses a lithium secondary battery wherein the active material of the positive electrode element is selected from the group consisting of lithium intercalation compounds, lithium salts, lithium oxides, and combinations thereof, wherein; the lithium intercalation compound is selected from the group consisting of LiCoO_2 , LiNiO_2 , LiMn_2O_4 ; the lithium salt is selected from the group consisting of LiF and Li_2SO_4 ; and the lithium oxide is selected from the group consisting of Li_2O and LiOH .

Claim 1 has been amended to further clarify the invention as claimed. The purpose of the present invention is to suppress gas generation that arises from the decomposition of an electrolysis solution in the lithium ion battery. Claim 1 recites a lithium compound deposited on a surface of the oxide, the lithium compound covering nickel present on the surface of the

oxide, whereby the lithium compound prevents the oxygen radicals being released from the surface of the oxide to decompose an electrolysis solution. Further, gas generation by the decomposition of an electrolysis solution is suppressed. Then, swelling the battery comprising the positive electrode material is prevented by suppressing the gas generation (see paragraph [0008], [0033] and [0125] of the specification as originally filed).

The specification as originally filed provides a description of the unexpected results achieved by the claimed invention. Specifically, the lithium compound provides a better performance for the decrease in the internal resistance -- internal resistance increase rate could be controlled to be lower than that of Comparative Examples (see FIGS. 10 to 13). On the other hand, as shown in the Comparative Examples, the surface of the Li-Ni oxide and the electrolysis solution react with each other to increase the resistance (see paragraph [0042]). As a result, batteries with a high voltage could effectively function even under high temperature without problems of the reaction generating too much gas or the internal resistance rising too much.

On the contrary, the secondary reference Huang fails to disclose these characteristics and therefore fails to cure the deficiencies of the primary reference, Mao. Specifically, Huang teaches that lithium salts or lithium oxide are reactants used for forming an ionic complex that could serve as both an electrolyte and soluble cathode materials in conjunction with a catalyst. Then, the soluble cathode would provide a specific capacity (see paragraph 11 of Huang). There is no discussion in Huang at all about the use of a lithium compound to suppress swelling by suppressing oxygen radicals being released from the surface of the oxide, which tend to decompose the electrolysis solution, thereby suppressing gas generation by the decomposition of the electrolysis solution. Accordingly, Mao and Huang fail to teach the unexpected results achieved by the claimed invention, as discussed above.

For at least this reason, Applicants believe that it would not have been obvious for one of ordinary skill in the art to use lithium fluoride or lithium sulfate to cover the nickel oxide taught by Mao, instead of cobalt oxide. Therefore, Applicants submit that the combination of Mao and Huang would not have been within the ambit of one of ordinary skill in the art and does not render claim 1 (and dependent claims 3, 6, 11 and 12 thereto) unpatentable.

(b) **Claim 2 was rejected over Kurasawa.** Claim 2 is dependent on claim 1 and is therefore patentable for the same reasons that claim 1 is patentable.

(c) **Claim 2 was rejected over Mao in view of Huang and further in view of Kurasawa.** Claim 2 is dependent on claim 1 and is therefore patentable for the same reasons that claim 1 is patentable.

Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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